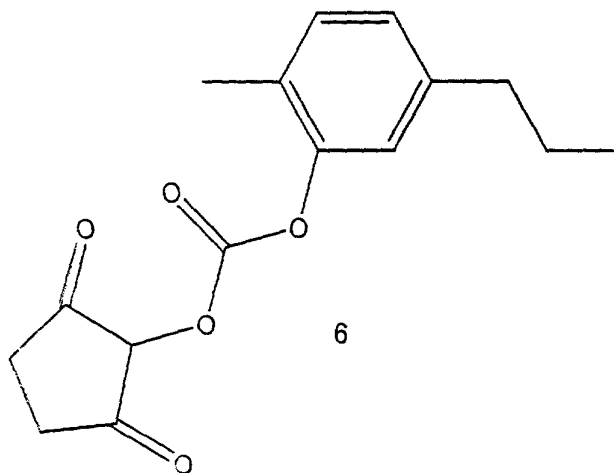
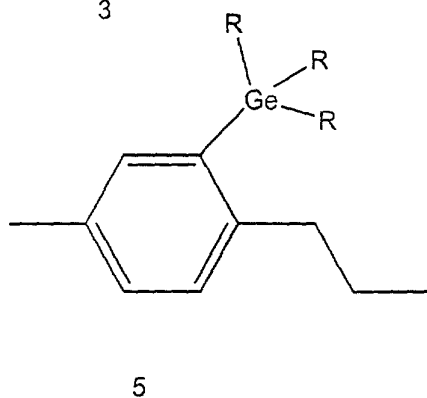
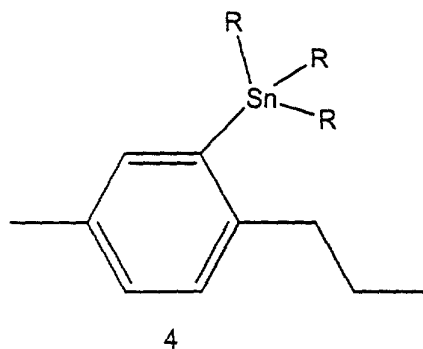
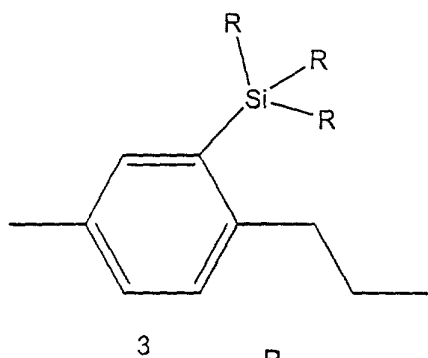
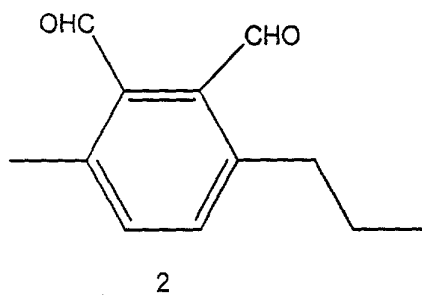
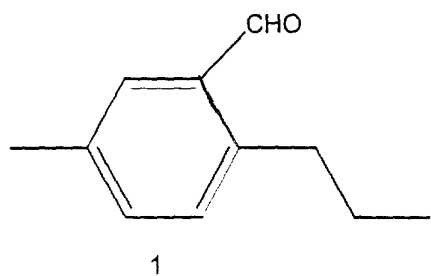


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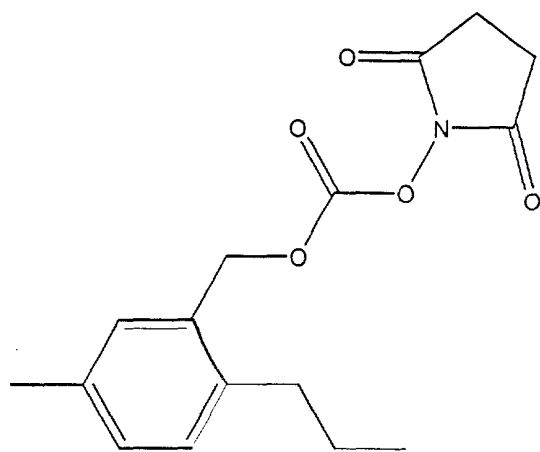
1 1. A one-step chemical vapor deposition process such that the deposited coating
2 comprises at least one interface containing chemical groups having sufficient intrinsic reactivity
3 to react with target molecules.

1 2. A chemical vapor deposition process; said process includes coating a substrate with
2 a reactive coating that includes repeating units selected from the following:

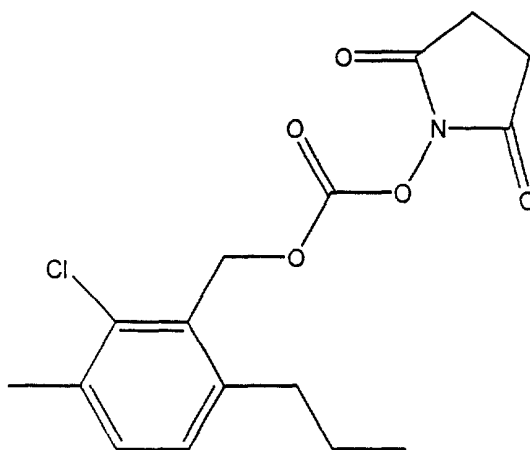
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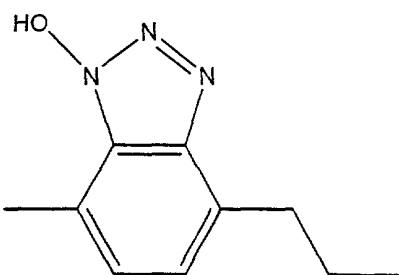
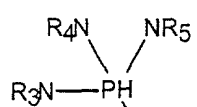
R: hydrogen atom, alkyl, aryl, benzyl, halogen, hydroxyl, alkoxy



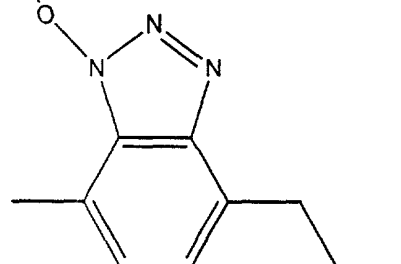
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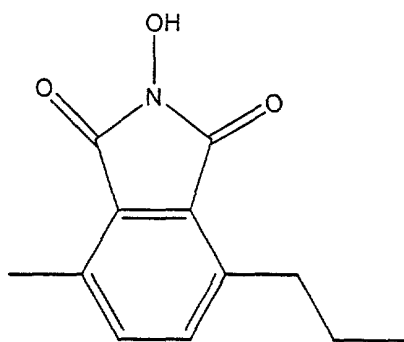
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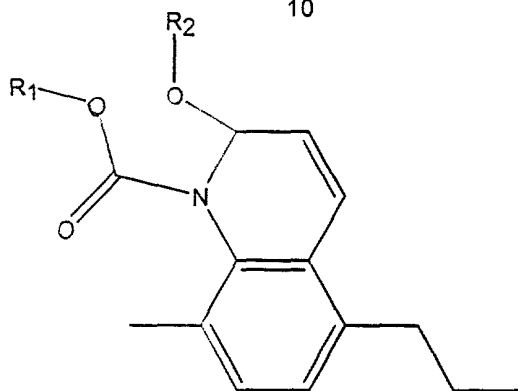
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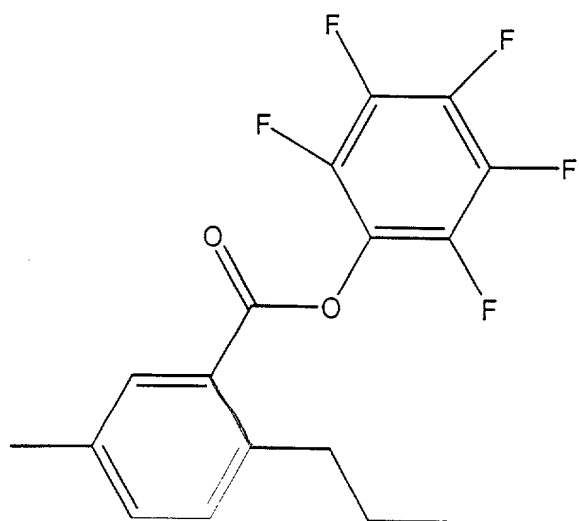


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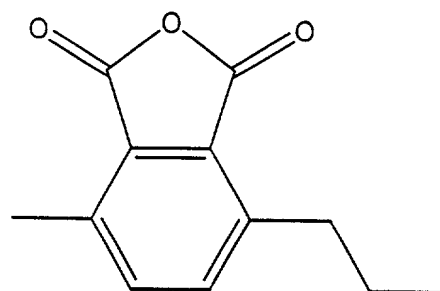


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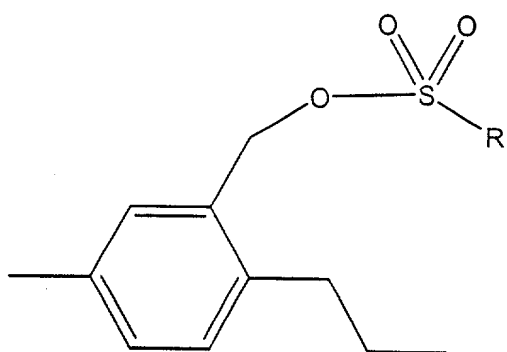
R₁, R₂, R₃, R₄, R₅ independently are: hydrogen atom, alkyl, aryl, benzyl



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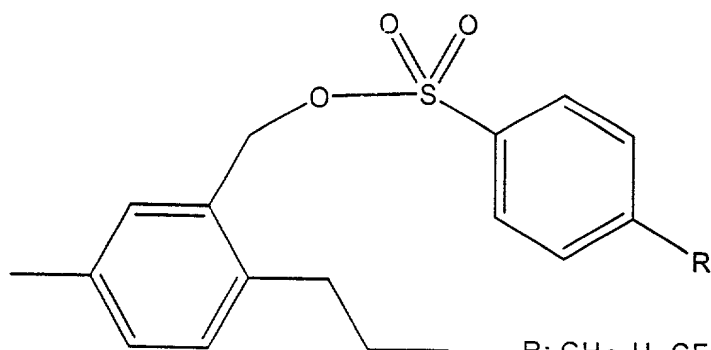


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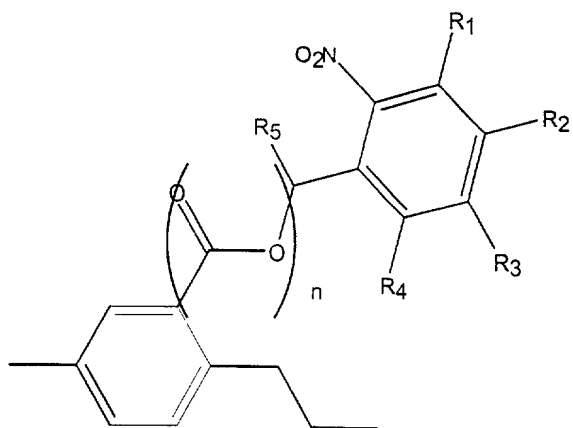
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R: F, CH₃, CF₃, C₄F₉, CH₂CF₃, C₂F₅,
(CH₂)_nNR'₂ (R': hydrogen atom, alkyl,
aryl, benzyl)



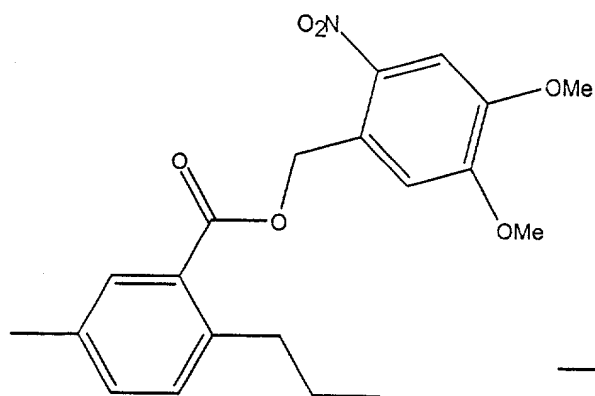
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R: CH₃, H, CF₃, NO₂,
Br, F, Cl, I

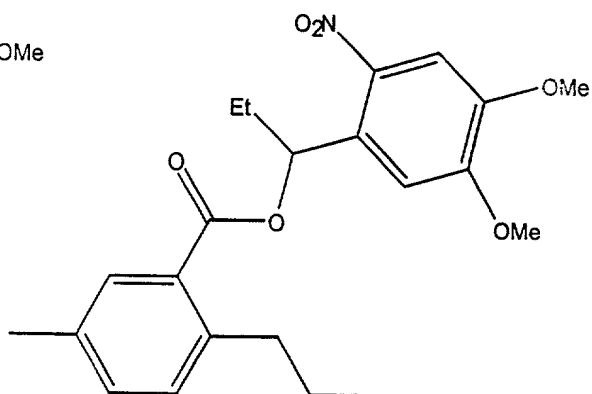


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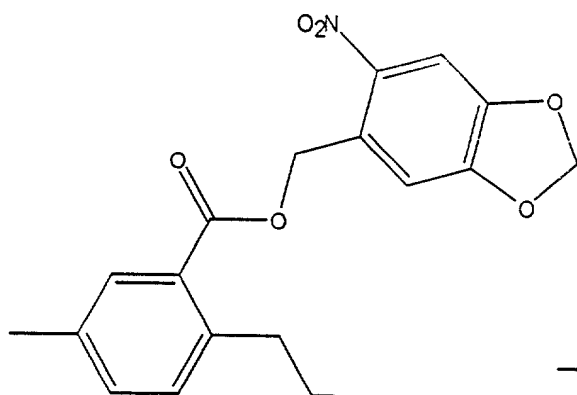
R₁, R₂, R₃, R₄ independently are:
hydrogene atom, alkyl, aryl, benzyl,
halogen, hydroxyl, alkoxy, thiol,
thioether, amino, nitro
n: 0 or 1
R₅: hydrogene atom, alkyl, alkenyl,
benzyl, halogene, alkoxy,



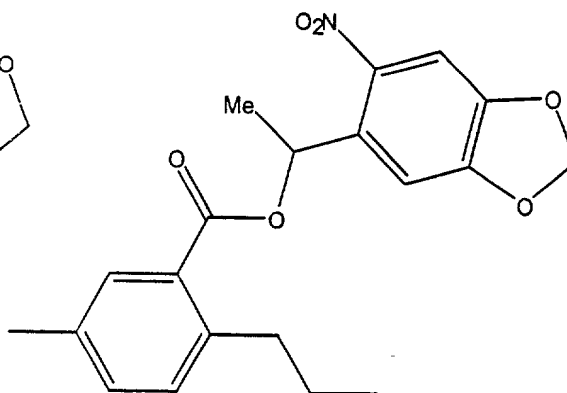
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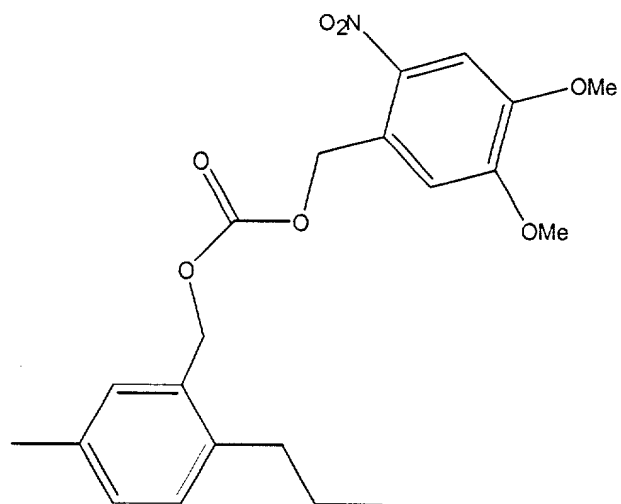
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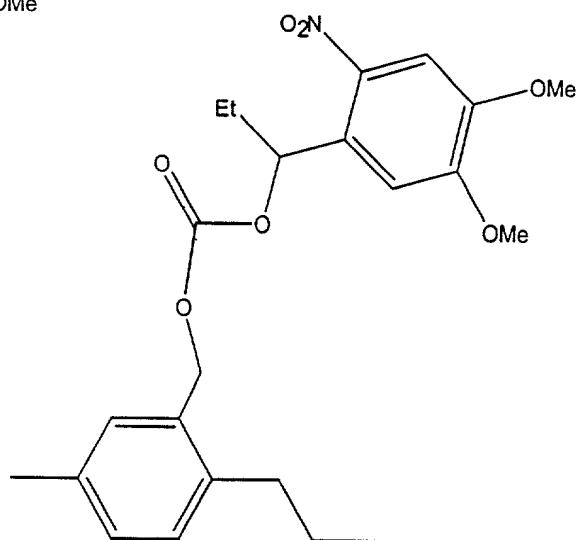
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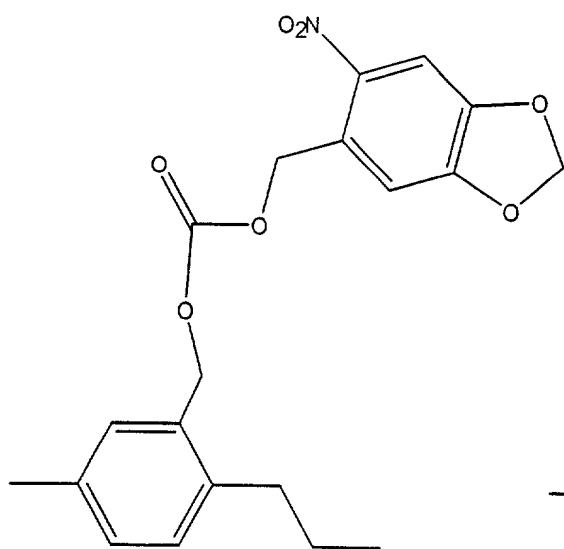
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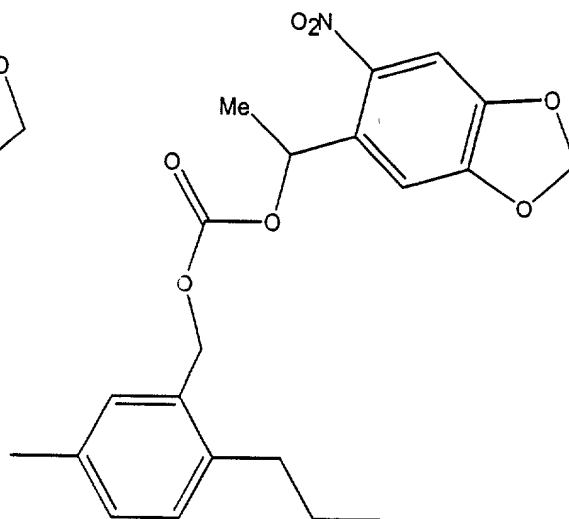
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1 3. The chemical vapor deposition process of claim 1, wherein the interfaces are based
2 on poly[para-xylylenes]s or copolymers thereof.

1 4. The chemical vapor deposition process of the claim 1, wherein
2 [2.2]paracyclophanes are polymerized during the chemical vapor deposition process.

1 5. The chemical vapor deposition process as defined in claim 1, wherein the polymeric
2 coating is poly[*para*-xylylene carboxylic acid pentafluorophenolester-co-*para*-xylylene].

1 6. The chemical vapor deposition process of claim 1, wherein the coating includes
2 interfaces containing functional groups, which are capable of reacting with functional groups of
3 target molecules resulting in stable linkages.

1 7. The chemical vapor deposition process of claim 1, wherein the coating includes
2 interfaces containing functional groups, where illumination with light was used to induce
3 reaction with functional groups of target molecules resulting in stable linkages.

1 8. The chemical vapor deposition process of claim 7, wherein photolithography is used to
2 create immobilization pattern on a substrate.

1 9. The chemical vapor deposition of claim 1, wherein a [2.2]paracyclophane is
2 deposited onto a substrate, said process including:

3 providing purified [2.2]paracyclophane;

4 sublimating the [2.2]paracyclophane under a reduced pressure of less than 100 Pa;

5 heating the sublimated material to approximately 550°C - 900°C to cleave C-C bonds
6 to produce monomers;

7 polymerizing the monomers which are absorbed on the substrate at a temperature below
8 150°C to produce a topologically uniform polymer film.

1 10. The chemical vapor deposition process of claim 9, wherein the sublimation of
2 [2.2]paracyclophane 4-carboxylic acid pentafluorophenolester is conducted at a pressure of 0.2
3 mbar and at a temperature between 120 to 130°C and the polymerization temperature is below
4 45°C.

1 11. The chemical vapor deposition process of claim 10 wherein the polymer film is
2 transparent.

1 12. The chemical vapor deposition process of claim 10, wherein the polymeric film has
2 a thickness between 40 and 2000 nm.

1 13. The chemical vapor deposition process of claim 1, wherein said coating is applied in
2 a pattern on a substrate.

1 14. A chemical vapor deposition coating process as claimed in claim 1, including
2 microstructuring by stamping a surface of a substrate to produce a pattern.

1 15. The chemical vapor deposition process of claim 1, wherein the polymer interface is
2 patterned by spatially restricted attachment of biotin-ligands.

1 16. The chemical vapor deposition process of claim 1, wherein the polymer interface is
2 patterned by spatially restricted attachment of peptides.

1 17. The chemical vapor deposition process of claim 1, wherein the polymer interface is
2 patterned by spatially restricted attachment of proteins.

1 18. The chemical vapor deposition process of claim 1, wherein the polymer interface is
2 patterned by spatially restricted attachment of oligonucleotides.

1 19. The chemical vapor deposition process of claim 1, wherein the polymer interface is
2 patterned by spatially restricted attachment of DNA.

1 20. The chemical vapor deposition process of claim 1, wherein the polymer interface is
2 patterned by spatially restricted attachment of polysaccharides.

1 21. The chemical vapor deposition process of claim 1 further including patterning the
2 surface of the substrate using layer-by-layer adsorption.

1 22. A chemical vapor deposition process of claim 1, wherein (+)-biotinyl-3,6,9-
2 trioxaundecanediamine was used for coating different patterns of substrates with poly[*para*-
3 xylylene carboxylic acid pentafluorophenylester-co-*para*-xylylene].

1 23. The chemical vapor deposition process as claimed in claim 1, further including
2 masking a surface of the substrate to produce a patterned coating having defined areas, each
3 area having different functional groups.

1 24. The chemical vapor deposition process as claimed in claim 1 further including a
2 plasma treatment of the substrate prior to the chemical vapor deposition process.

1 25. The chemical vapor deposition process as claimed in claim 1, wherein a polymer
2 interface containing chemical groups having sufficient intrinsic reactivity to react with target
3 molecules is created and the chemical groups show an anisotropic distribution on the surface.

1 26. The chemical vapor deposition process as claimed in claim 25, wherein a gradient of
2 reactivity is formed.

1 27. The chemical vapor deposition process as claimed in claim 1, wherein the deposited
2 coating comprises co-polymers with at least two different types of chemical groups each having
3 sufficient intrinsic reactivity to react with target molecules.

1 28. The chemical vapor deposition process as claimed in claim 1, wherein the deposited
2 coating comprises co-polymers of at least one polymer with at least one type of chemical groups
3 having sufficient intrinsic reactivity to react with target molecules and of at least one polymer
4 that has no sufficient intrinsic reactivity to react with target molecules.

1 29. The chemical vapor deposition process as claimed in claim 28 wherein the polymer
2 that has no sufficient intrinsic reactivity to react with target molecules is a poly(*p*-xylylene).

1 30. The chemical vapor deposition process as claimed in claim 28 wherein the polymer
2 that has no sufficient intrinsic reactivity to react with target molecules is a functionalized poly(*p*-
3 xylylene).

1 31. The chemical vapor deposition process as claimed in claim 28 wherein the polymer
2 that has no sufficient intrinsic reactivity to react with target molecules is a poly(olefin).

1 32. Preparation of an electrophoresis chamber including depositing a polymer coating
2 by chemical vapor deposition as claimed in claim 1, said coating including functional groups to
3 enhance surface properties.